State of Utah

Department of
Natural Resources

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Division of
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October 14, 2004

CERTIFIED RETURN RECEIPT
7099 3400 0016 8896 0563

Ken George, Quarry Manager
Holcim (U.S.) Inc.
6055 East Croydon Road
Auxiliary Route #3
Morgan, Utah 84050

Subject: Initial Review of Notice of Intention to Commence Large Mining Operations, Holcim (U.S.) Inc., Skull Valley Diatomaceous Earth Quarry, M/045/060, Tooele County, Utah

Dear Mr. George:

The Division has completed our initial review of your draft Notice of Intention to Commence Large Mining Operations for the Skull Valley Diatomaceous Earth Quarry, located in Tooele County, Utah, which was received August 24, 2004. After reviewing the information, the Division has the following comments which will need to be addressed before tentative approval may be granted.

The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion. **Please address only those items requested in the attached technical review. You may send replacement pages of the original mining notice using redline and strikeout text, so we can see what changes have been made. After the notice is determined technically complete and we are prepared to issue final approval, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval of the permit, we will return one copy stamped "approved" for your records.** Please provide a response to this review by November 15, 2004.

The Division will suspend further review of the Skull Valley Diatomaceous Earth Quarry Notice of Intention until your response to this letter is received. If you

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have any questions in this regard please contact me or Tom Munson of the Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor
Minerals Regulatory Program

DRH:TM:jb
Attachment: Review
cc: Mike Ford, BLM, SLFO (UTU-77753)

INITIAL REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Holcim (U.S.) Inc.
Skull Valley Diatomaceous Earth Quarry

M/045/060
October 14, 2004

R647-4-104 – Operators, Surface and Mineral Ownership

The ownership of the land and minerals affected by this proposed operation is noted as the BLM. Under Section R647-4-105.1, Castle Rock Land & Livestock is noted as the owner of the land. Please clarify. (DJ)

R647-4-105 - Maps, Drawings & Photographs

105.2 Surface facilities map

The plan states that plant growth medium storage areas are shown on Figure 105.4.
There are no plant growth medium (pgm) storage areas shown on this map, please show these locations of these areas. (DJ)

Figures 105.5 & 105.6 show surface contours with and without the center road that presently passes through the proposed quarry.
The reclamation will be affected by the mining of the first three-acre blocks scheduled to be mined. A decision on whether this road needs to be replaced needs to be made before mining of these areas is initiated. (DJ)

Unless a final decision is made concerning the removal of crushed rock used to upgrade the access road after closure, bonding for this activity should be included in the bond calculations. (DJ)

R647-4-106 - Operation Plan

106.2 Type of operations conducted, mining method, processing etc.

The application states that mining at the site will remove between one to three feet of pgm.
The reclamation of the site states that only one foot of pgm will be placed over the reclaimed areas. Where will the excess material removed from the areas to be mined be stored and how will this storage area be reclaimed? (DJ)

106.5 Existing soil types, location, amount

The operator commits in the plan to conduct a soil survey in the spring/summer following permit approval. Until the soil survey is complete, the operator will continue to remove and stockpile one to three feet of plant growth material. This consists of gravels and topsoil overlying the diatomaceous earth. (PBB)

The Division and the operator need more information about the plant growth material. Salvaging between one and three feet of soil may not be the best plan for this area. Soils may have undesirable characteristics at some depth below the surface, so it may be better to salvage and replace less soil than this. It could also be necessary or desirable to save this full amount; it is impossible to know without the information from a soil survey. (PBB)

The Division and the operator need information about the physical and chemical nature of the soil, including information about the horizons within the rooting zone. The soil should be described according to standard soil survey procedures, and tested for parameters like sodium absorption ratio, electrical conductivity, texture, coarse fragment content, and nutrient levels (primarily N, P, K). (PBB)

Revegetation success at the quarry has been very poor, and the Division is unwilling to allow further expansion of the mine without the required baseline information and a soil salvage and protection plan based on this information. (PBB)

106.6 Plan for protecting & redepositing soils

Until the soil survey is completed, the operator intends to salvage one to three feet of soil. This will be stockpiled in multiple piles adjacent and contiguous to the mining area. Mining will be done in campaigns, possibly several each year, and disturbed areas will be reclaimed annually. (PBB)

The Division normally requires that soil stockpiles be shown on a map, but because of the ongoing nature of the mining and reclamation activities, this may be difficult. Nevertheless, the locations need to be marked in some way. The Division suggests that signs be placed on soil stockpiles designating the soil and making it less likely the material would be used for something other than soil. The plan needs to contain this commitment or another method for marking the soil. (PBB)

The operator needs to propose a plan for protecting the soil from weed infestations. Although reclamation will be done annually, there is a lot of cheatgrass, halogeton, and other weeds in the area that could contaminate the soil

and make revegetation very difficult. Depending on the exact timing of soil salvage and respreading operations, there may be a chance for weeds to become established and go to seed on the soil stockpile. It may help to plant an aggressive annual grain, such as winter barley, in the spring to compete with the weeds. In those areas, such as the roads where the soil will not be used right away, a semi-permanent vegetation cover should be established. (PBB)

What is the nature of the material over which the growth medium will be placed? This material may need to be suitable as a subsoil in cases where only one foot of soil is placed over it. Are there any places where it would be consolidated material? Does it have any detrimental characteristics, such as high sodium or salts? (PBB)

Wherever possible, the Division discourages the use of fertilizer, but the plan says fertilizer will be distributed over disturbed areas. Fertilizers tend to increase weed growth and often do little to encourage the growth of desirable species. Unless soil tests indicate the soil is extremely low in nutrients, fertilizer should not be used. (PBB)

Depending on the nature of the soil, it may be necessary to use composted manure or other organic material to increase water holding capacity, improve the nutrient content, and ameliorate potential undesirable characteristics in the soil. A determination about the need for this material will need to wait until the Division has more information about the soils and about the success of past reclamation efforts. (PBB)

The prepared seedbed needs to be very rough. The first paragraph in Section 110.2 says, "Any equipment track depressions will be *smoothly* [emphasis added] re-contoured and the pit will be contoured to a broad, shallow depression." The Division is unsure of the reason for this comment in light of the statement in Section 110.5 that "Seedbeds will be left in a rough condition whenever possible." Please reconcile these statements and show how roughening will be done. (PBB)

106.7 Existing vegetation - species and amount

The operator proposes to conduct a vegetation survey at the same time as the soil survey in the spring/summer after the permit application is approved. Why can this not be done now or could it not have been done this past season? The survey should be included as part of the application. (PBB)

There are two main reasons for obtaining vegetation baseline information. One is to determine which species would be best in the seed mix, and the other is to

establish revegetation success standards. Section 109.3 says the proposed disturbed area has been previously disturbed by prior mining activity, agriculture and livestock grazing. The previously disturbed areas probably have less vegetation than undisturbed areas, and without baseline information to document the vegetation cover existing before mining, the operator would be held to the standard of restoring the site to 70 percent of the cover of undisturbed areas. Therefore, it is in the operator's best interest to obtain this information prior to disturbing any area. (PBB)

R647-4-107 - Operation Practices

107.3 Erosion control & sediment control

The plan states that the slopes will be stabilized to minimize erosion and facilitate vegetation.

The slopes will need to be ripped on contour to remove compaction which will minimize erosion and enhance water harvesting needed to facilitate vegetation. (DJ)

R647-4-108 - Hole Plugging Requirements

The plan contains four different scenarios pertaining to hole plugging at the site. The holes should be plugged consistent with the rule R647-4-108. (DJ)

R647-4-110 - Reclamation Plan

110.1 Current & post mining land use

The plan needs to show whether the roads will be reclaimed or kept for the postmining land use. It says road improvements will be removed when mining is completed unless otherwise instructed by the BLM and that the road will not be reclaimed unless instructed by the BLM. The operator needs to obtain the BLM's opinion on leaving the roads and improvements and write the mine plan accordingly. (PBB)

110.3 Description of facilities to be left (post mining use)

The plan states "Any temporary structures will be removed and the areas reclaimed.

Section R647-4-106.2 of the plan indicates that no temporary structures will be placed on the site. If temporary structures are to be placed at the site, please include them in the plan and include their removal in the bond calculations. (DJ)

110.5 Revegetation planting program

See comments under R647-4-107.3 (DJ)

The plant growth medium to be harvested will range from 9,680 cubic yards to 29,040 cubic yards. If no soil survey is completed before the approval of this notice, replacement of 29,040 cubic yards should be included in the bond calculations. (DJ)

The application says seeding will be done between October 1 and March 15, but December 15 is the latest that seeding should be done. Seeding later than this is hardly ever successful, especially in places with marginal conditions for revegetation. The plan needs to be changed accordingly. (PBB)

Section 110.5 says seed will be drilled or broadcast, but Section 110.2 says it will be broadcast. Drill seeding tends to decrease surface roughness, so broadcast seeding is preferred, especially on slopes. (PBB)

The quantity of seed in the seed mix is marginal for broadcasting, and the Division suggests adding Russian wild rye, fourwing saltbush, Palmer penstemon, and forage kochia at the rates of 2, 2, 0.25 and 0.25 pounds of pure live seed per acre respectively. This mix contains some introduced species and will need to be approved by the BLM, but the species are all adapted to the site and should do well in reclamation. (PBB)

If the seed is broadcast, it is important that this occur very soon or immediately after seedbed preparation is complete, and the plan should contain a commitment to this effect. For example, a seeder could be mounted on the back of a dozer to spread seed as the ripping is being done. (PBB)

R647-4-111 - Reclamation Practices

111.10 Trenches and Pits

The plan calls for all the mined out areas to basically be left as pits. The division does not have a major concern with this other then it would like to minimize the area where the water impounds during torrential downpours, as this will concentrate salts and affect vegetation in this area. So if the plan states that the pits will be graded so the water collects only in one end of the pit, then the Division will accept this and grant a variance. (TM)

R647-4-113 – Surety

The surety should include the cost of reclaiming the road unless a letter from the BLM removing that reclamation liability is obtained. (DJ)

The hourly production rate for the D8R dozer with a U-blade and 85% efficiency was calculated by Holcim @ 595 LCY/hr.
The earth moving costs indicate a production rate for this dozer @ 765 LCY. Please explain the increased production rate in this area. (DJ)

The surety estimate contained in the plan indicates a cost for a 980G front end loader is $54/hr and a D8R dozer cost is $68/hr both including fuel & labor. The Rental Rate Blue Book used by the Division for bond estimation indicates that rental rate for a 980G loader is $88/hour with an estimated operating cost of $39.15/hr. The rental rate for a D8R dozer is $135/hr with an estimated operating cost of $51.85. Please adjust the surety to reflect these increased costs hourly & operating costs. (DJ)

In order to evaluate the earthmoving costs indicated in the plan, an average push distance for the dozer and average tram distance for the loader need to be noted. (DJ)

Item 3 in the surety estimate labeled "Grading after applying PGM" should be changed to Ripping after applying PGM. Ripping should be a minimum of 18 inches in non-compacted areas and 24 inches in compacted areas. Use of a dozer with a 3 ripper set-up is recommended. (DJ)

The estimated cost to broadcast seed used by the Division is $240/acre, which includes a seed cost plus equipment to be used to spread the seed. Because of the volatility of seed costs, actual costs cannot be used in our estimates. (DJ)

The cost to reclaim the road should include seed and fertilization costs. (DJ)

The cost to remove and haul the crushed rock road base at the completion of mining should be included in the bond estimate. (DJ)